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Enhancing tourism workforce development: A theory of planned behavior-based approach to school-enterprise collaboration in Viet Nam

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ABSTRACT

This study explores the determinants of school-enterprise collaboration in tourism human resource training in South Central Viet Nam, where tourism plays a pivotal economic role. Building on the Theory of Planned Behavior and extending it with context-specific factors, including trust, competitive advantage, perceived risk, self-efficacy, social support, and barriers, the research develops a comprehensive framework to predict collaborative intention and behavior. Data were collected from 209 leaders and faculty members at universities, colleges, and vocational schools in South Central Viet Nam between March and June 2024 and analyzed using Partial Least Squares Structural Equation Modeling. Results indicate that attitudes, subjective norms, and perceived behavioral control significantly influence collaboration intention, which subsequently predicts collaborative behavior. Competitive advantage and trust positively affect attitudes, whereas perceived risk exerts a negative effect. Policies and social requirements strengthen subjective norms, while self-efficacy and social support enhance perceived behavioral control. The model explains 41.9% of the variance in intention and 47.0% in behavior, confirming its robustness. The study contributes to TPB literature by integrating tourism-specific and institutional factors and provides practical implications for policymakers and educators to strengthen partnerships, enhance capacity, build trust, and implement supportive policies to address skill mismatches in Viet Nam's tourism sector.

1. INTRODUCTION

Tourism significantly contributes to Viet Nam's economy, driving GDP growth, job creation, and regional competitiveness, particularly in South Central Viet Nam's tourism hubs such as Da Nang, Khanh Hoa, and Lam Dong (Khuong, 2016). However, rapid sector growth reveals a critical gap: misalignment between training outcomes and tourism enterprises' needs, leading to labor shortages, retraining costs, and graduate underemployment (Nguyen et al., 2023; Vinh & Minh, 2024). Robust school-enterprise collaboration is essential to align curricula with industry demands, such as customer service and cultural competence (Arinaitwe, 2021).

Globally, countries such as Germany and Switzerland implement dual training systems that integrate classroom and workplace learning to enhance employability (Sauli, 2021). In ASEAN, Singapore and Indonesia leverage industry-driven curricula to produce work-ready graduates (Nankervis et al., 2017; Sari et al., 2023). These

partnerships provide schools with industry insights and enterprises with reduced recruitment risks, fostering innovation (Ankrah & Al-Tabbaa, 2015). In contrast, Viet Nam's collaborations remain informal, constrained by limited resources, weak trust, and misaligned objectives, despite policy support for education-industry linkages (Bui & Kikkawa, 2024). Schools can achieve differentiation through industry-aligned curricula, enhancing their competitive position (Porter, 1985).

Existing research on Viet Nam's school-industry collaboration focuses on universities and technology sectors (Dang et al., 2024), overlooking vocational training in tourism. Moreover, macro-level studies dominate, neglecting behavioral determinants of collaboration. The Theory of Planned Behavior (TPB) (Ajzen, 1991) posits that intention, shaped by attitude, subjective norms, and perceived behavioral control (PBC), predicts behavior. Extended with trust, competitive advantage, perceived risks, policies, self-efficacy, social support, and barriers (Linan & Chen, 2009; Rossoni et al., 2024), TPB offers a robust framework for analyzing collaboration in Viet Nam's tourism human resource (THR) training.

To address these gaps, this study applies and extends the TPB by incorporating sector-specific and organizational constructs, and by expanding the research sample to include vocational schools in addition to universities, in analyzing their collaboration with enterprises in THR training in South Central Viet Nam. The extended model introduces variables such as trust, competitive advantage, perceived risks, government policies, self-efficacy, social support, and barriers (Linan & Chen, 2009; Rossoni et al., 2024). These constructs are crucial in resource-constrained contexts where collaboration depends on not only behavioral intentions but also relational dynamics and institutional environments (Barney, 1991; Mayer et al., 1995; Sigala, 2020). By integrating these factors, the study provides a comprehensive framework for understanding collaboration dynamics in THR training—an area where empirical research remains limited, particularly in tourism-focused economies.

The objectives of this research are threefold. First, it examines the influence of TPB constructs on schools' intentions and behaviors toward enterprise collaboration. Second, it explores how extended variables—trust, competitive advantage, perceived risks, social support, and policy frameworks—shape attitudes, subjective norms, and PBC. Third, it offers practical recommendations for policymakers and practitioners to strengthen collaboration and address Viet Nam's skills mismatch in tourism. Specifically, the study seeks to answer three questions:

(1) How do TPB constructs (attitude, subjective norms, PBC) predict schools' collaboration intention and behavior?
(2) How do tourism-specific and contextual factors influence these constructs and their relationships?
(3) What strategies can effectively promote sustainable school-enterprise partnerships in resource-constrained contexts?

This study makes several contributions. Theoretically, it extends TPB by integrating institutional and sectoral dimensions, offering a robust model for analyzing collaborative behavior in THR training (Ajzen, 1991; Armitage & Conner, 2001; Plant, 2009). Empirically, it provides evidence from South Central Viet Nam—a region where tourism is economically vital but educational linkages remain weak—thereby addressing a significant gap in the literature dominated by studies of developed economies (Perkmann & Walsh, 2007; Zhang et al., 2022). In practice, the findings generate actionable insights for fostering effective partnerships through capacity building, trust enhancement, risk mitigation, and supportive policy frameworks (Dirks & Ferrin, 2002; Linan & Chen, 2009; Sigala, 2020). By advancing understanding of the behavioral mechanisms underpinning collaboration, this study contributes to the broader agenda of strengthening THR training schools to support sustainable tourism development and competitiveness in the global market.

2. MATERIALS AND METHOD

2.1. Theoretical framework

2.1.1. Theory of Planned Behavior (TPB)

In the context of the tourism sector, TPB suggests that schools' intentions to collaborate with enterprises are influenced by their positive attitudes toward partnerships, social pressures from stakeholders such as industry partners and policymakers (subjective norms), and their perceived ability to implement collaborative activities (i.e., PBC) (Arinaitwe, 2021; Sauli, 2021). TPB has been widely applied to study education-industry partnerships, highlighting the role of institutional motivations in fostering collaboration (Jäppinen, 2012; Dougherty & Lombardi, 2016;

Khuong, 2016; Wu & Lin, 2025). This study adopts TPB as its foundational framework and extends it with context-specific constructs (e.g., trust, competitive advantage) to address the unique challenges in Viet Nam's tourism industry. This approach aligns with Plant's (2009) study on behavioral factors leading to inter-organizational linkages, which highlights the role of intrinsic motivation and cultural compatibility, providing an additional perspective for analyzing school–business cooperation in Viet Nam's tourism industry. By integrating these constructs, the study provides a comprehensive model for understanding the dynamics of school-led collaboration and their implications for enhancing THR training.

Although the TPB was originally developed to predict individual behavior (Ajzen, 1991), it has been successfully extended and applied to organizational and inter-organizational contexts, especially in education-industry and firm-to-firm collaborations. In such settings, decisions are often made collectively by organizational leaders or representatives, where attitudes reflect institutional evaluations of partnerships, subjective norms capture stakeholder pressures (e.g., policy, industry, or peer expectations), and PBC encompasses the organization's perceived ability to allocate resources and overcome barriers for collaboration (Plant, 2009). Recent empirical applications support this extension: for example, Arzenšek et al. (2018) used TPB to predict young researchers' intentions for university-industry collaboration, Zhang et al. (2022) applied it to enterprises' participation in school-enterprise cooperation, and Plant (2009) modeled behavioral antecedents of inter-firm linkages using TPB in the Irish road freight industry. These studies align with our approach by treating schools as decision-making entities whose collaborative intentions and behaviors are shaped by adapted TPB constructs.

2.1.2. Key factors influencing school-enterprise collaboration

a. Intention in collaboration with enterprises in THR training

According to the TPB, intention is a key predictor of behavior, reflecting an organization's readiness to perform a specific action (Ajzen, 1991). In the context of THR training, schools' intention to collaborate with enterprises is critical for translating their commitment into tangible collaborative behaviors, such as co-developing curricula or facilitating internships (Arinaitwe, 2021; Jäppinen, 2012). Schools with strong intentions to collaborate are more likely to proactively engage with enterprises to align training with industry needs, such as customer service and cultural competence, addressing the region's demand for skilled labor (Khuong, 2016). For instance, schools that intend to partner with enterprises for work-integrated learning are more likely to establish sustainable collaborations that enhance student employability and regional competitiveness (Sauli, 2021; Wu & Lin, 2025). Thus, the following hypothesis is proposed:

Hypothesis H1. *Schools' intention to collaborate with enterprises in THR training positively influences their collaborative behavior with enterprises.*

b. Attitude toward collaboration

Attitude, defined as an individual's or organization's positive or negative evaluation of a behavior (Ajzen, 1991), is a key driver of collaboration between schools and enterprises in THR training. In THR training, collaboration with enterprises is essential to align curricula with industry needs, yet challenges such as outdated programs and weak partnerships persist (Gangotia et al., 2021; Khuong, 2016). Schools with positive attitudes toward collaboration are more likely to proactively engage with enterprises, viewing such partnerships as opportunities to enhance student employability, access industry expertise, and improve the relevance of training (Arinaitwe, 2021; Jäppinen, 2012). Research shows that these attitudes are shaped by perceived benefits, including practical training opportunities and enhanced institutional reputation (Ankrah & Al-Tabbaa, 2015; Sauli, 2021). In the tourism sector, where skills like customer service, cultural competence, and adaptability are critical, positive attitudes from schools can foster effective partnerships to address skill shortages and meet market demands (Khuong, 2016; Wu & Lin, 2025). Moreover, proactive attitudes help overcome barriers such as misaligned training objectives and weak links in collaboration, as observed in global VET systems (Dougherty & Lombardi, 2016; Sauli, 2021). Therefore, this study hypothesizes:

Hypothesis H2. *Schools' positive attitudes toward collaboration positively influence their intention to collaborate with enterprises in THR training.*

c. Subjective norms

Subjective norms, defined as the perceived social pressure to engage in a behavior (Ajzen, 1991), play a critical role in shaping schools' intentions to collaborate with enterprises in THR training. These norms reflect the expectations of key stakeholders, such as government agencies, industry associations, local communities, and enterprises, who value partnerships for their economic and social benefits (Sauli, 2021). In Viet Nam, where tourism is a priority sector, national policies and regional strategies exert normative pressure on schools to align training with industry needs through collaboration (Khuong, 2016). For instance, stakeholder expectations from tourism enterprises and local communities encourage schools to integrate practical skills such as customer service and cultural competence into curricula (Dang et al., 2024; Gangotia et al., 2021). Additionally, industry associations and government initiatives often promote work-integrated learning and internships, further motivating schools to pursue partnerships (Arinaitwe, 2021; Wu & Lin, 2025). Thus, the following hypothesis is proposed:

Hypothesis H3. Subjective norms positively influence schools' intentions to collaborate with enterprises in THR training.

d. Perceived behavioral control (PBC)

PBC, defined as an organization's belief in its ability to perform a specific behavior given available resources and opportunities (Ajzen, 1991), is a critical determinant of schools' engagement in collaboration with enterprises in THR training. PBC reflects schools' confidence in their capacity to allocate resources, such as faculty expertise, funding, and infrastructure, to partnership activities, such as co-developing curricula or facilitating internships (Arinaitwe, 2021; Jäppinen, 2012). Schools with high PBC are more likely to initiate and sustain collaborative efforts, overcoming barriers such as limited funding, outdated facilities, or logistical constraints (Bui & Kikkawa, 2024; Dang et al., 2024; Nguyen et al., 2023; Rossoni et al., 2024). In the tourism sector, where practical skills like adaptability are essential, schools' confidence in their ability to integrate industry insights into training programs significantly influences collaboration outcomes (Khuong, 2016). For instance, schools that perceive themselves as capable of coordinating with enterprises to provide work-integrated learning opportunities are more likely to foster effective partnerships (Sauli, 2021; Wu & Lin, 2025). Support from stakeholders, such as government funding or industry networks, further enhances schools' PBC by alleviating resource constraints (Dang et al., 2024). Thus, the following hypotheses are proposed:

Hypothesis H4. PBC positively influences schools' intentions (H4a) and behavior (H4b) in collaboration with enterprises in THR training.

e. Antecedents for attitude toward collaboration

Perceived risk refers to schools' concerns about potential losses or uncertainties associated with collaboration, such as misaligned expectations, resource constraints, or uncertain training outcomes (Nguyen et al., 2023). In THR training, risks may stem from limited funding, cultural mismatches between academic and industry practices, or challenges in coordinating internships (Bui & Kikkawa, 2024; Vinh & Thanh, 2024). High perceived risk can foster negative attitudes among schools, reducing their willingness to engage in partnerships with enterprises (Dang et al., 2024). By addressing these risks through clear agreements and stakeholder support, schools can foster more positive attitudes toward collaboration (Nguyen et al., 2023; Bui & Kikkawa, 2024). Thus, the following hypothesis is proposed:

***Hypothesis H5**. Perceived risk negatively influences schools' attitudes toward collaboration with enterprises in THR training.*

Trust, defined as the expectation that a partner will fulfill agreements reliably (Sako, 1992), is a cornerstone of effective school-enterprise collaboration. In the context of THR training, trust reflects schools' confidence in enterprises' commitment to provide resources, expertise, or internship opportunities that enhance training quality (Arinaitwe, 2021; Sauli, 2021). In Viet Nam, personal networks and cultural values shape professional relationships, and trust is critical for fostering long-term partnerships (Khuong, 2016; Vinh & Thanh, 2024). Schools that perceive enterprises as reliable partners are more likely to develop positive attitudes toward collaboration, thereby facilitating joint efforts such as curriculum co-development (Wu & Lin, 2025). Sako's (1992) insights on trust in inter-firm relations, particularly in collectivist cultures like Japan, resonate with Viet Nam's reliance on personal networks in school-enterprise partnerships. This leads to the following hypothesis:

Hypothesis H6. *Trust positively influences schools' attitudes toward collaboration with enterprises in THR training.*

Competitive advantage, defined as an organization's ability to create superior value or reduce costs compared to competitors (Porter, 1985), motivates schools to collaborate with enterprises. Partnerships enable schools to enhance their reputation, attract more students, and align training with industry needs, such as cultural tourism expertise or customer service skills, thereby strengthening their position in the education sector (Gangotia et al., 2021). In the tourism industry, collaboration with enterprises allows schools to produce graduates tailored to market demands, enhancing employability and regional competitiveness (Khuong, 2016; Nguyen et al., 2023; Vinh & Thanh, 2024). Schools that perceive collaboration as a pathway to competitive advantage are more likely to develop positive attitudes toward partnerships (Bui & Kikkawa, 2024). Thus, the following hypothesis is proposed:

Hypothesis H7. *Competitive advantage positively influences schools' attitudes toward collaboration with enterprises in THR training.*

f. Government policies and social requirements for subjective norms

Government policies and social requirements shape subjective norms by creating expectations that schools collaborate with enterprises in THR training (Ajzen, 1991; Arinaitwe, 2021; Wu & Lin, 2025). In Viet Nam, national policies, such as the Viet Nam Government's 2016–2020 Economic and Social Development Strategy, promote education-industry linkages through incentives like funding for training programs and tax benefits, encouraging schools to align curricula with industry needs (Khuong, 2016). Social requirements from local communities, industry associations, and tourism stakeholders further reinforce these norms by emphasizing the societal and economic benefits of partnerships, such as enhanced employability and regional competitiveness (Crouch & Ritchie, 1999). For instance, government initiatives supporting work-integrated learning and industry associations advocating for skill development exert normative pressure on schools to pursue collaborative activities like curriculum co-development and internships (Arinaitwe, 2021; Wu & Lin, 2025). Despite these influences, barriers such as bureaucratic inefficiencies and limited funding can hinder schools' responsiveness to these norms (Bui & Kikkawa, 2024; Dang et al., 2024; Rossoni et al., 2024). Thus, the following hypothesis is proposed:

Hypothesis H8. Government policies and social requirements positively influence schools' subjective norms in collaborating with enterprises in THR training.

g. Antecedents for PBC

Self-efficacy, defined as an organization's belief in its ability to perform specific tasks (Bandura, 1986; Schunk & Zimmerman, 2012), is closely related to PBC but emphasizes internal confidence and skills within the framework of the TPB (Ajzen, 1991). In the context of THR training, self-efficacy reflects schools' confidence in their ability to manage partnerships with enterprises effectively, such as co-developing industry-aligned curricula or organizing internships (Arinaitwe, 2021; Jäppinen, 2012). Schools with high self-efficacy are better equipped to initiate and sustain collaborative efforts, overcoming barriers such as limited funding, outdated infrastructure, and logistical challenges (Bui & Kikkawa, 2024; Dang et al., 2024). In the tourism sector, self-efficacy enables schools to align training with industry demands, enhancing student employability and regional competitiveness (Dang et al., 2024; Khuong, 2016). For instance, schools that believe in their capacity to coordinate work-integrated learning programs with enterprises are more likely to strengthen their PBC by securing resources and stakeholder support (Sauli, 2021; Wu & Lin, 2025). This internal confidence is particularly vital in the tourism industry, in which seasonal labour demands and cultural tourism requirements necessitate robust collaboration (Gangotia et al., 2021). Thus, the following hypothesis is proposed:

Hypothesis H9. *Self-efficacy positively influences school's PBC in collaboration with enterprises in THR training.*

Social support, encompassing resources and encouragement from stakeholders such as enterprises, government, and local communities, significantly enhances schools' PBC in collaborating with enterprises in THR training (Ajzen, 1991; Sauli, 2021). Social support includes financial aid, infrastructure sharing, and mentoring programs from enterprises and government initiatives, which bolster schools' confidence in their ability to deliver industry-relevant education (Khuong, 2016). For instance, enterprises providing internships or funding for training facilities

empower schools to develop curricula aligned with industry needs (Wu & Lin, 2025). This support enhances schools' capacity to engage in collaborative activities, improving student employability and regional competitiveness (Arinaitwe, 2021). Thus, the following hypothesis is proposed:

Hypothesis H10. *Social support positively influences schools' PBC in collaborating with enterprises in THR training.*

Despite the potential for collaboration, schools face significant *barriers* that undermine their PBC in partnering with enterprises in THR training, including resource constraints, misaligned objectives, and regulatory challenges (Bui & Kikkawa, 2024; Dang et al., 2024). Schools often cite limited funding, outdated infrastructure, and bureaucratic inefficiencies as major impediments to effective collaboration (Khuong, 2016). Additionally, differences in priorities—such as schools' focus on long-term educational goals versus enterprises' emphasis on short-term operational needs—can create misalignment, reducing schools' confidence in their ability to sustain partnerships (Gangotia et al., 2021). These barriers weaken schools' PBC, limiting their capacity to address industry demands for skilled labor. Thus, the following hypothesis is proposed:

Hypothesis H11. *Barriers negatively affect schools' PBC for collaborating with enterprises on THR training.*

The conceptual framework, which integrates TPB with additional constructs to explain school-enterprise collaboration in THR training, is shown in Figure 1.

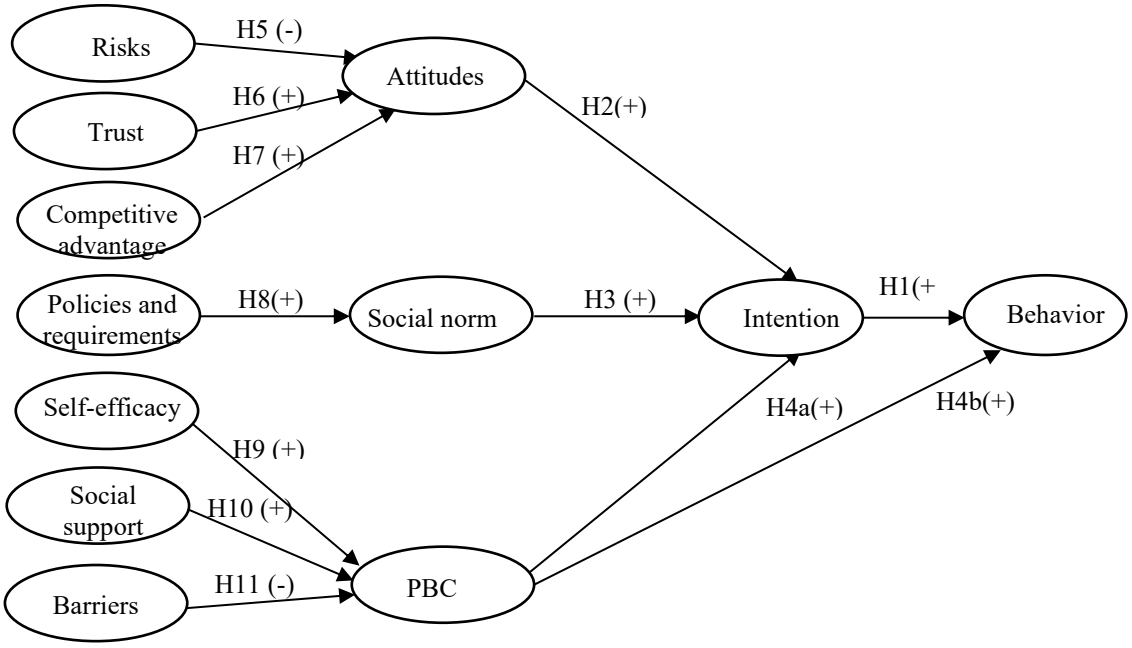

Figure 1. The proposed research model

Source: The authors' own creation (2026)

3. RESULTS

3.1. Data collection and sample

Data were collected from universities, colleges, and vocational schools in South Central Viet Nam, a region where tourism serves as a key economic sector. This study employed a cross-sectional design, using a structured self-administered questionnaire to collect data on all variables at a single point in time (March–June 2024). For instance, behavioral intention (future-oriented readiness to collaborate) and actual collaborative behavior (self-reported frequency of past and recent activities, such as joint curriculum development and internships) were measured on the same instrument. This approach is standard and widely accepted in

TPB research, where intention serves as a proximal predictor of behavior, and self-reported measures provide valid proxies for organizational actions in contexts where objective records are difficult to obtain (Ajzen, 1991; Armitage & Conner, 2001). Meta-analytic evidence confirms the robustness of TPB in cross-sectional designs, with intention explaining substantial variance in both future intentions and self-reported behavior (Armitage & Conner, 2001).

A structured questionnaire was administered to 258 potential respondents, including school leaders, training department staff, and tourism faculty members. After excluding incomplete responses, 209 valid questionnaires were retained, yielding an effective response rate of 81%. This sample size satisfies the minimum requirements for PLS-SEM, which recommends at least 10 times the number of structural paths in the research model (Hair et al., 2019). Prior to the main survey, the questionnaire was pre-tested with 30 respondents to ensure clarity, content validity, and reliability, and minor revisions were made based on their feedback.

The final sample comprised 209 respondents representing THR training institutions in South Central Viet Nam. Participants included school leaders (25%), training department staff (30%), heads of tourism faculties (20%), and other personnel involved in cooperation or training activities (25%). Among the surveyed institutions, 60% were public and 40% private, with tourism departments averaging 15 permanent faculty members and 8 adjunct faculty members. Respondents had an average of 10.2 years of experience in their current positions (SD = 4.5), with 58% having at least 8 years of tenure, and 62% reported prior direct involvement in school-enterprise collaboration activities (e.g., curriculum co-development, internship coordination, or joint training programs).

In educational institutions, organizational decision-making regarding strategic collaborations is typically a collective and participatory process involving senior leaders, department heads, and experienced faculty who represent institutional perspectives, allocate resources, and coordinate stakeholder inputs (Hughes & Preski, 1997; Phillips, 1981). These characteristics position the respondents as appropriate key informants for school-level collaboration decisions, given their seniority, tenure, and practical experience in partnership initiatives. The sample size satisfies PLS-SEM requirements, exceeding 10 times the number of structural paths in the model.

3.2. Measurements

This study employed validated measurement scales, adapted from the established literature, to assess factors influencing collaboration between schools and enterprises in THR training. The scales were contextualized for the tourism sector and translated into Vietnamese using the back-translation method to ensure accuracy and semantic equivalence. All constructs were measured on a seven-point (e.g., 1 = strongly disagree, 7 = strongly agree). The questionnaire included sections on institutional characteristics, collaboration activities, intentions, and influencing factors.

Behavior and intention were measured based on the TPB. Intention to collaborate was assessed using three items reflecting schools' motivation to engage in collaboration with enterprises in tourism human resource (THR) training: (1) the school's desire to collaborate, (2) its readiness to collaborate, and (3) its perceived need for collaboration (Ajzen, 1991; Bui & Kikkawa, 2024; Vinh & Thanh, 2024). Actual collaborative behavior was measured using four items capturing the extent of school–enterprise engagement: (1) provision of customized human resource training based on enterprise needs, (2) maintenance of close relationships with enterprises for knowledge exchange, (3) support for student internships and practical training, and (4) development of strong ongoing relationships with enterprises in THR training (Bui & Kikkawa, 2024; Khuong, 2016).

TPB constructs included attitude, subjective norms, and PBC. Attitude was measured using three items assessing: (1) positive attitudes toward collaboration, (2) willingness to implement joint projects and programs, and (3) recognition of the benefits generated by collaboration (Ajzen, 1991). Subjective norms were captured through three items reflecting: (1) perceived expectations from communities and stakeholders for schools to collaborate, (2) encouragement from national policies and industry regulations, and (3) perceptions that collaboration constitutes part of the school's social responsibility (Ajzen, 1991). PBC was measured with three items assessing: (1) control over collaboration decisions, (2) ability to ensure the quality of collaborative activities, and (3) capability to manage collaboration processes according to institutional standards (Ajzen, 1991; Plant, 2009).

Extended constructs addressed context-specific determinants. Trust was measured using three items evaluating: (1) confidence that enterprises would fulfill their commitments, (2) trust in enterprise competence and capabilities, and (3) perceptions of enterprise transparency and honesty during collaboration (Sako, 1992; Mayer et al., 1995). Competitive advantage was assessed through three items reflecting: (1) improvements in human resource quality through practical training, (2) enhancement of institutional reputation and brand image, and (3) creation of distinctive competitive advantages in the education market (Barney, 1991; Sigala, 2020). Perceived risk was measured using three items capturing concerns regarding: (1) reduced training quality due to enterprise intervention, (2) reputational damage arising from legal or financial problems of enterprise partners, and (3) financial risks associated with unfulfilled funding or investment commitments (Cui, 2022).

Government policies and social requirements were measured using three items assessing: (1) regulatory requirements or policy encouragement for collaboration, (2) social expectations and industry norms promoting collaboration, and (3) the extent to which compliance with policies and social requirements makes collaboration necessary (Liu et al., 2022). Social support was measured with four items evaluating: (1) support from national education policies, (2) support through economic incentives such as financial or tax measures, (3) assistance from social organizations in connecting schools and enterprises, and (4) resources provided through government development programs (Linan & Chen, 2009). Self-efficacy was assessed using three items reflecting leaders' confidence in: (1) making independent and timely collaboration decisions, (2) providing strategic direction for collaborative activities, and (3) jointly making important collaboration decisions (Bandura, 1986; Schunk & Zimmerman, 2012). Finally, barriers were measured with three items capturing obstacles related to: (1) cultural differences between schools and enterprises, (2) insufficient financial resources for joint projects, and (3) lack of mutual trust between partners (Rossoni et al., 2024).

3.3. Analytical procedure

Data were analyzed using SmartPLS 4.0, following a two-step approach: measurement model assessment and structural model evaluation (Hair et al., 2019). The measurement model was evaluated for reliability (Cronbach's alpha, Composite Reliability [CR]) and validity (Average Variance Extracted [AVE], Heterotrait-Monotrait ratio [HTMT]). The structural model tested effects using bootstrapping with 10,000 subsamples to ensure robust statistical inference. Common method bias was assessed using Harman's single-factor test, confirming no significant bias (Podsakoff et al., 2003).

3.4. Measurement model assessment

Table 1 reports the results for 12 constructs in the proposed model. All constructs demonstrated strong internal consistency, with Cronbach's alpha and CR values exceeding the recommended threshold of 0.70, confirming scale reliability. Convergent validity was established as all AVE values were greater than 0.50, and item loadings exceeded 0.70, meeting recommended standards (Hair et al., 2019).

Table 1. Measurement model results

Construct	Items	Factor Loadings	Cronbach's alpha	CR	AVE
Behavior	4	0.834–0.869	0.873	0.877	0.724
Intention	3	0.827–0.905	0.851	0.856	0.771
Attitude	3	0.779–0.875	0.790	0.793	0.706
Social norm	3	0.719–0.842	0.721	0.733	0.643
PBC	3	0.886–0.942	0.909	0.910	0.846
Perceived risks	3	0.904–0.927	0.908	0.909	0.844
Trust	3	0.806–0.909	0.839	0.868	0.755
Competitive advantages	3	0.905–0.943	0.922	0.924	0.866
Policies and social requirements	4	0.822–0.927	0.917	0.943	0.799
Self-efficacy	3	0.826–0.919	0.866	0.897	0.787
Barriers	3	0.913–0.932	0.910	0.924	0.847
Social support	4	0.782–0.860	0.858	0.859	0.703

Source: Authors' own creation (2026)

Table 2. Inter-Correlations, and Discriminant Validity (HTMT)

Construct	1	2	3	4	5	6	7	8	9	10	11	12
1. Behavior	-	0.659 [0.501, 0.810]	0.585 [0.411, 0.765]	0.419 [0.238, 0.600]	0.595 [0.459, 0.734]	0.380 [0.229, 0.519]	0.599 [0.461, 0.729]	0.505 [0.317, 0.701]	0.486 [0.318, 0.648]	0.507 [0.361, 0.644]	0.375 [0.204, 0.537]	0.567 [0.386, 0.741]
2. Intention	0.56	-	0.674 [0.542, 0.796]	0.600 [0.457, 0.732]	0.650 [0.509, 0.774]	0.290 [0.148, 0.436]	0.678 [0.552, 0.792]	0.644 [0.505, 0.773]	0.478 [0.321, 0.625]	0.491 [0.335, 0.633]	0.444 [0.281, 0.585]	0.628 [0.492, 0.745]
3. Attitude	0.40	0.46	-	0.703 [0.544, 0.839]	0.665 [0.489, 0.821]	0.304 [0.158, 0.442]	0.794 [0.661, 0.808]	0.790 [0.751, 0.845]	0.699 [0.586, 0.799]	0.625 [0.482, 0.740]	0.413 [0.229, 0.566]	0.830 [0.776, 0.836]
4. Social norm	0.40	0.51	0.48	-	0.731 [0.572, 0.848]	0.301 [0.149, 0.464]	0.774 [0.635, 0.835]	0.701 [0.543, 0.842]	0.566 [0.404, 0.710]	0.491 [0.307, 0.654]	0.515 [0.346, 0.660]	0.693 [0.540, 0.821]
5. PBC	0.62	0.53	0.38	0.46	-	0.463 [0.303, 0.607]	0.811 [0.692, 0.814]	0.666 [0.496, 0.823]	0.518 [0.343, 0.678]	0.545 [0.391, 0.683]	0.626 [0.465, 0.757]	0.695 [0.522, 0.847]
6. Perceived risks	-0.32	-0.31	-0.43	-0.30	-0.36	-	0.463 [0.303, 0.607]	0.356 [0.213, 0.496]	0.465 [0.316, 0.601]	0.508 [0.371, 0.637]	0.690 [0.557, 0.809]	0.392 [0.255, 0.521]
7. Trust	0.46	0.46	0.49	0.54	0.52	-0.27	-	0.792 [0.676, 0.839]	0.574 [0.413, 0.716]	0.548 [0.400, 0.676]	0.540 [0.364, 0.687]	0.744 [0.620, 0.845]
8. Competitive advantages	0.35	0.43	0.6	0.48	0.42	-0.44	0.58	-	0.670 [0.535, 0.794]	0.622 [0.468, 0.745]	0.489 [0.321, 0.637]	0.770 [0.745, 0.844]
9. Policies and requirements	0.38	0.40	0.54	0.40	0.39	-0.46	0.46	0.54	-	0.566 [0.421, 0.691]	0.419 [0.247, 0.590]	0.725 [0.604, 0.831]
10. Self-efficacy	0.42	0.42	0.43	0.29	0.44	-0.37	0.34	0.36	0.42	-	0.468 [0.303, 0.624]	0.650 [0.505, 0.764]
11. Barriers	-0.33	-0.33	-0.27	-0.35	-0.43	0.49	-0.41	-0.41	-0.40	-0.34	-	0.516 [0.338, 0.669]
12. Social support	0.41	0.42	0.53	0.48	0.50	-0.38	0.54	0.59	0.59	0.42	-0.41	-

Note. The matrix of inter-correlations and HTMT values is shown below and above the diagonal, respectively.

Source: Author's own creation.

The results are presented in Table 2. All intercorrelations among the constructs were significant, with the highest being 0.62. Discriminant validity was evaluated using the Heterotrait-Monotrait (HTMT) ratio, as proposed by Henseler et al. (2015). All HTMT values were below the conservative threshold of 0.85 (maximum HTMT = 0.830), and the upper bounds of their 95% confidence intervals were also lower than 0.85, confirming that the constructs are empirically distinct (Henseler et al., 2015). Additionally, Harman's single-factor test was conducted to assess common method bias, with the first factor accounting for 32.4% of the variance, well below the 50% threshold, indicating no significant bias (Podsakoff et al., 2003).

3.5. Testing hypotheses

The structural model was tested using PLS-SEM with 10,000 bootstrap subsamples to assess effects. The results, presented in Table 3, confirm that all 11 hypotheses are supported. Within the TPB framework, intention significantly predicts collaborative behavior (H1: $\beta = 0.33$). TPB constructs, including attitude (H2: $\beta = 0.22$), social norms (H3: $\beta = 0.25$), positively influence intention to collaborate. PBC also significantly affects both intention (H4a: $\beta = 0.33$) and behavior (H4b: $\beta = 0.44$).

Additionally, extensive constructs, including perceived risks (H5: $\beta = -0.20$, trust (H6: $\beta = 0.21$), and competitive advantages (H7: $\beta = 0.39$),

significantly influence attitude. Similarly, policies and social requirements significantly drive social norms (H8: β = 0.39). Self-efficacy (H9: β = 0.23), social support (H10: β = 0.30), and barriers (H11: β = -0.22) significantly affect PBC. These findings validate the proposed model, demonstrating that TPB constructs, combined with contextual factors, effectively explain school-enterprise collaboration in THR training.

Table 3. Testing hypotheses

Hypothesis	*β*	Std. error	*t*-value	*p*-value	f^2
H1: Intention → Behavior	0.33	0.12	2.76	0.006	0.168
H2: Attitude → Intention	0.22	0.08	2.79	0.005	0.066
H3: Social norm → Intention	0.25	0.09	2.77	0.006	0.084
H4a: PBC → Intention	0.33	0.10	3.33	0.001	0.158
H4b: PBC → Behavior	0.44	0.12	3.86	0.000	0.294
H5: Risks → Attitude	-0.20	0.08	-2.62	0.009	0.069
H6: Trust → Attitude	0.21	0.08	2.54	0.011	0.060
H7: Competitive advantage → Attitude	0.39	0.09	4.38	0.000	0.173
H8: Policies and requirements → Social norm	0.39	0.08	5.20	0.000	0.201
H9: Self-efficacy → PBC	0.23	0.08	2.85	0.004	0.077
H10: Social support → PBC	0.30	0.08	3.85	0.000	0.121
H11: Barriers → PBC	-0.22	0.08	-2.86	0.004	0.071

Source: Authors' own creation (2026).

The predictive power of the model was evaluated using the PLS predict procedure. The results are presented in detail in Table 4. The data show that the Q^2predict values for all observed variables (items) are greater than 0, confirming that the model has adequate predictive relevance. The estimated model has acceptable fit indices (SRMR = 0.055). Cohen's f^2 ranged from 0.066 to 0.294, suggesting that the relationships among constructs were small to moderate.

Table 4. PLS predict procedure

Construct	Q^2predict	PLS-SEM_MAE	LM_MAE
Items of behavior			
Beh1	0.176	0.715	0.773
Beh2	0.151	0.835	0.919
Beh3	0.170	0.724	0.771
Beh4	0.144	0.811	0.836
Items of intention			
Int1	0.206	0.756	0.771
Int2	0.178	0.735	0.757
Int3	0.215	0.627	0.649

Source: Authors' own creation (2026).

Finally, the results showed that the values of the partial least square root mean square of error (PLS-SEM_MAE) were less than the likelihood maximum root mean absolute (LM_MAE) for all items of behavior and intention, demonstrating that the proposed model had medium predictive power. The model explained 41.9% of the variance in collaboration intention (R^2 = 0.419) and 47.0% in collaborative behavior (R^2 = 0.470), indicating high explanatory power (Hair et al., 2019).

4. DISCUSSION

4.1. Research summary

This study validates the theoretical model, demonstrating that the TPB constructs, combined with contextual factors, effectively explain school-enterprise collaboration in THR training. The support for all 11 hypotheses indicates that this model is a robust theoretical framework for understanding the drivers and barriers to collaboration. Notably, the discovery of significant impacts from external factors such as perceived risks, trust, competitive advantages, policies, social requirements, self-efficacy, social support, and barriers significantly expands the scope of the traditional TPB model. These results have important implications for developing strategies to enhance collaboration among stakeholders by focusing on shaping attitudes, improving perceived behavioral control, and reinforcing social norms through appropriate policies and support.

4.2. Theoretical implications

4.2.1. Core TPB constructs

The results confirm that the core TPB constructs—attitude, subjective norms, and PBC—significantly influence schools' intentions to collaborate with enterprises in THR training. Specifically, intention

significantly predicts collaborative behavior, validating TPB's assertion that intention is a key antecedent of behavior (Ajzen, 1991). This finding aligns with prior studies on education-industry partnerships (Perkmann & Walsh, 2007).

Attitude and subjective norms positively influence intentions to collaborate, consistent with TPB and prior research (Ajzen, 1991). The relatively modest effect of attitude (β = 0.22) compared to subjective norms (β = 0.25) indicates that external pressures from stakeholders—such as government policies, industry associations, and local communities—are more influential in shaping schools' intentions in Viet Nam's tourism sector. This finding contrasts with Zhang et al. (2022), who reported a stronger role for attitude in Chinese enterprise-led collaborations, suggesting that Viet Nam's collectivist culture and policy-driven tourism sector amplify normative pressures (Khuong, 2016). The prominence of subjective norms highlights a unique contribution of this study: in developing regions like South Central Viet Nam, where tourism is a priority sector, stakeholder expectations create a socially desirable imperative for schools to pursue partnerships, distinguishing this context from more individualistic or less policy-driven settings (Bui & Kikkawa, 2024).

PBC exhibits a significant influence on both intention and behavior, underscoring its pivotal role in school-enterprise collaboration. The stronger direct effect on behavior (β = 0.44) compared to intention (β = 0.33) suggests that schools' perceived ability to secure resources, negotiate agreements, and manage logistical challenges is critical for translating intentions into tangible outcomes, such as internships or curriculum co-development (Khuong, 2016). This finding aligns with Perkmann and Walsh (2007), who emphasized organizational capacity as a driver of university-industry partnerships in Germany, but extends their work by highlighting PBC's amplified role in a resource-scarce developing context. The strong effect of PBC reflects Viet Nam's unique challenges, such as limited budgets and faculty expertise, which necessitate robust organizational capabilities to sustain collaborations (Bui & Kikkawa, 2024). Unlike studies in developed economies, where resource constraints are less pronounced (Perkmann & Walsh, 2007), this study underscores PBC as a critical enabler in overcoming regional barriers, offering a novel contribution to TPB applications in THR training. The findings highlight the critical role of PBC in resource-constrained settings, where organizational capacity is a stronger driver than attitude or subjective norms, providing a nuanced understanding of collaboration dynamics. By focusing on schools in the THR sector, this study fills a gap in the literature, which has largely overlooked this specific context in favor of broader university-industry or developed economy settings (Bui & Kikkawa, 2024; Zhang et al., 2022).

4.2.2. Extended constructs

The extended TPB framework incorporates context-specific constructs—perceived risks, trust, competitive advantage, policies and social requirements, self-efficacy, social support, and barriers—to provide a nuanced understanding of school-enterprise collaboration dynamics in THR training in South Central Viet Nam, offering novel insights into their roles in a developing economy's THR training context (Bui & Kikkawa, 2024; Khuong, 2016).

Perceived risks negatively influence attitude toward collaboration, supporting the hypothesis that concerns about potential losses, such as misaligned expectations or reduced training quality, deter schools' positive evaluations of partnerships (Cui, 2022). This finding aligns with prior research highlighting risks as impediments to collaboration in resource-constrained settings (Bui & Kikkawa, 2024). However, unlike studies in developed economies where risks are often mitigated by robust infrastructure (Perkmann & Walsh, 2007), this study's focus on Viet Nam reveals that limited budgets and cultural mismatches amplify risk perceptions, uniquely shaping schools' cautious attitudes toward enterprise partnerships.

Trust and competitive advantage positively influence attitude, confirming their critical roles in fostering favorable perceptions of collaboration. Trust enhances schools' confidence in enterprises' reliability and transparency, particularly in a Vietnamese context where personal networks and cultural values underpin professional relationships (Sako, 1992; Mayer et al., 1995; Dirks & Ferrin, 2002; Khuong, 2016). The stronger effect of competitive advantage (β = 0.39) compared to trust (β = 0.21) suggests that schools prioritize strategic benefits, such as enhanced training quality and institutional reputation, over relational factors (Barney, 1991; Sigala, 2020). This contrasts with findings in developed economies, where trust often plays a dominant role in university-industry partnerships (Mayer et al., 1995). The prominence

of competitive advantage in this study underscores a unique contribution: in Viet Nam's competitive educational landscape, schools view collaboration as a strategic tool to differentiate themselves and meet industry demands for skills such as cultural competence and customer service (Khuong, 2016).

Policies and social requirements significantly influence subjective norms, reflecting the role of external pressures, such as government incentives and stakeholder expectations, in shaping schools' perceptions of collaboration as a socially desirable responsibility (Ajzen, 1991; Linan & Chen, 2009). This finding aligns with Khuong (2016), who noted that Viet Nam's national policies, such as funding for work-integrated learning, encourage education-industry alignment. However, the strong policy effect in this study highlights a distinct feature. The region's tourism-driven economy amplifies normative pressures from local communities and industry associations, distinguishing it from broader university-industry contexts where policy influence may be less pronounced (Bui & Kikkawa, 2024).

Self-efficacy and social support positively influence PBC, supporting Bandura's (1986) and Linan and Chen's (2009) assertions that internal confidence and external resources enhance organizational capacity. The stronger effect of social support (β = 0.30) compared to self-efficacy (β = 0.23) suggests that external resources, such as government funding and enterprise commitments, are critical in resource-scarce settings like Viet Nam. This finding extends prior research by emphasizing the pivotal role of stakeholder support in enabling schools to overcome logistical challenges, such as coordinating internships or curriculum co-development (Khuong, 2016). Unlike studies in developed contexts where self-efficacy often dominates (Bandura, 1986), this study's focus on social support highlights its unique importance in a developing economy, where external resources significantly bolster schools' confidence in managing partnerships.

Barriers negatively influence PBC, indicating that resource constraints, misaligned objectives, and bureaucratic inefficiencies undermine schools' perceived ability to collaborate (Rossoni et al., 2024). This finding aligns with Bui and Takuro (2024), who identified similar barriers in Viet Nam's education-industry linkages. However, the moderate effect size (β = -0.22) suggests that while barriers are significant, their impact is mitigated by strong social support and self-efficacy, a dynamic less explored in prior studies focused on developed economies (Perkmann & Walsh, 2007). This interplay represents a key contextual contribution. In Viet Nam, schools' ability to navigate barriers through external support and internal confidence is critical for sustaining collaborations in the THR sector.

Compared to recent literature on school-enterprise collaboration in VET and tourism—such as dual training implementation in Spain (Marrero-Rodríguez & Stendardi, 2023) and conditions for success in Mexican tourism dual programs (Pilz & Vogelsang, 2025)—this study addresses a gap in developing Asian contexts by applying an extended TPB framework to school-level behavioral determinants. While Huo and Zhang (2025) focus on improving teacher education through partnerships in China, and Jeon et al. (2021) provide OECD-wide insights on VET leaders, our emphasis on PBC (the strongest predictor) and competitive advantage offers novel insights for resource-constrained settings such as South Central Viet Nam. These prior studies primarily examine structural or teacher-centric aspects in dual systems or emerging economies, whereas our behavioral approach using an extended TPB provides a complementary lens for understanding intentional and actual collaboration in Viet Nam's tourism sector.

This study's findings on school-enterprise collaboration in tourism human resource (THR) training in South Central Viet Nam reveal distinct dynamics when compared to models in Germany, Switzerland, and Singapore. Germany and Switzerland employ dual vocational systems that integrate classroom and workplace training through robust state-supported frameworks, ensuring high trust and low perceived risks (Sauli, 2021). In contrast, Viet Nam's partnerships are often informal, hindered by limited funding, bureaucratic inefficiencies, and misaligned objectives (Bui & Kikkawa, 2024). The stronger influence of competitive advantage (β = 0.39) over trust (β = 0.21) in this study suggests Vietnamese schools prioritize strategic benefits, such as enhanced training quality, over relational factors, unlike the trust-centric models in Europe (Mayer et al., 1995). Singapore's industry-driven approach leverages technology for work-integrated learning (Nankervis et al., 2017), while Viet Nam's resource constraints limit such integration (Vinh & Thanh, 2024). Within ASEAN, Thailand's tourism education faces similar resource challenges but benefits from stronger

industry networks for internships (Batra, 2016). Similarly, Indonesia's tourism education model shares similarities with Viet Nam's, facing challenges such as resource scarcity and informal school-enterprise linkages (Triyono & Moses, 2019). However, Indonesia benefits from stronger government-led initiatives, such as the *Wonderful Indonesia* campaign, which integrates industry inputs into vocational curricula, unlike Viet Nam's fragmented partnerships (Bui & Kikkawa, 2024). Viet Nam's collectivist culture amplifies subjective norms (β = 0.25), driven by stakeholder expectations, distinguishing it from Singapore's policy-driven context. Adopting Germany's structured apprenticeships or Singapore's technological approaches could strengthen Viet Nam's collaborations and address skill mismatches in tourism.

The integration of these extended constructs into the TPB framework offers several theoretical contributions. First, it validates the applicability of context-specific factors in explaining collaboration dynamics in a developing economy's THR training sector, extending TPB beyond its traditional focus on individual behavior (Ajzen, 1991). Second, it highlights the heightened importance of competitive advantage and social support in resource-constrained settings, in contrast to studies in developed economies, where trust and self-efficacy often dominate (Mayer et al., 1995; Bandura, 1986). Third, by including vocational schools in Viet Nam's THR sector, the study addresses a gap in the literature, which has primarily explored university-industry partnerships or broader educational contexts (Bui & Kikkawa, 2024; Zhang et al., 2022).

4.3. Practical implications

The findings offer actionable, evidence-based recommendations for key stakeholders to enhance school-enterprise collaboration in THR training. Interventions should prioritize the strongest predictors identified in the model: PBC, with the largest effects on both collaborative behavior (β = 0.44) and intention (β = 0.33); social support (β = 0.30 on PBC); policies and social requirements (β = 0.39 on subjective norms); competitive advantage (β = 0.39 on attitude); and trust (β = 0.21 on attitude). At the same time, efforts must mitigate negative influences such as perceived risk (β = -0.20 on attitude) and barriers (β = -0.22 on PBC).

For schools, as the primary initiators of collaboration, the focus should be on strengthening PBC through targeted capacity-building initiatives. These include training faculty in industry-relevant skills (e.g., customer service and cultural competence) and establishing dedicated units for partnership coordination to optimize resource allocation—measures directly aligned with the positive effect of self-efficacy. Schools should actively highlight competitive advantages, such as improved graduate employability and enhanced institutional reputation (Porter, 1985), when engaging with enterprises, and adopt risk-mitigation strategies, such as clear memoranda of understanding (MoUs), to foster trust and alleviate perceived risks (Dirks & Ferrin, 2002; Sako, 1992).

For enterprises, as essential providers of expertise and practical opportunities, the emphasis should lie in delivering robust social support. This can be achieved through structured internships, mentoring programs, and shared infrastructure, thereby reinforcing schools' PBC. Enterprises are encouraged to participate actively in joint curriculum development and customized training programs, recognizing the mutual benefits of access to a skilled workforce and lower recruitment costs (Khuong, 2016).

For policymakers and government agencies, priority should be given to reinforcing subjective norms through expanded supportive policies. Key instruments include financial incentives (e.g., tax breaks and grants), dedicated funding for internship schemes, and streamlined legal frameworks that reduce perceived risks and bureaucratic barriers. Policies should also promote work-integrated learning models and empower intermediary organizations to facilitate effective networking (Linan & Chen, 2009).

For tourism associations and intermediaries, a critical role is serving as a bridge between schools and enterprises. This can be accomplished by organizing regular workshops, joint projects, and transparent communication platforms to build trust and enhance social support (Pilz & Vogelsang, 2025). These entities should further advocate for policy alignment and disseminate successful case studies to reinforce perceptions of competitive advantage and normative pressures.

By implementing these stakeholder-specific, results-driven interventions, sustainable school-enterprise partnerships can be cultivated, effectively addressing the persistent skills mismatch in Viet Nam's tourism industry.

4.4. Limitations and future research

First, the sample is restricted to THR training schools in South Central Viet Nam, which may limit the generalizability of findings to other regions or sectors. Future research could employ comparative designs across multiple regions within Viet Nam to validate the robustness of the proposed model. Future research could also test the model in other sectors, such as technology or agriculture, to assess its generalizability beyond tourism. Second, longitudinal studies could examine how trust, resource allocation, and policy incentives evolve over time, influencing the sustainability of partnerships. Finally, future research could investigate emerging themes such as digital transformation in human resource training, the role of technological platforms in facilitating collaboration, and the impact of global disruptions (e.g., pandemics, economic crises) on school-industry linkages.

5. CONCLUSION

This study advances the understanding of school-enterprise collaboration in THR training in South Central Viet Nam by applying and extending the TPB. By integrating context-specific constructs—such as perceived risk, trust, competitive advantage, policies, self-efficacy, social support, and barriers—into the TPB framework, the research provides a comprehensive model that not only validates the core TPB constructs but also highlights their interplay with regional and sector-specific factors. The findings contribute to the literature by offering empirical evidence from a developing economy, where school-enterprise partnerships in tourism remain underexplored compared to school-industry linkages. This study's unique focus on schools in Viet Nam's THR sector, combined with its extended TPB framework, distinguishes it from prior research, which has primarily examined developed economies or broader education-industry contexts.

CONFLICT OF INTEREST

The authors declare that there is no potential conflict of interest in connection with the research, authorship, and publication of this article.

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